$$(2) \quad \lambda_s = \begin{cases} 0 & \text{for } s = 1,\ldots k \\ \pm iM_j & \text{for } s = k+2(m_1+\ldots+m_{j-1})+1,\ldots,k+2(m_1+\ldots+m_j) \\ & (j=1,\ldots p) \\ \pm iN_\nu & \text{for } s = k+2m+2(n_1+\ldots+n_{\nu-1})+1,\ldots,k+2m(n_1+\ldots+n_\nu) \\ & (\nu=1,\ldots r) \\ -u_s+iv_s & \text{for } u_s > 0 \quad v_s > 0 \quad s = k+2(m+n)+1,\ldots,l \end{cases}$$

and $m=m_1+\ldots+m_p$, $n=n_1+\ldots+n_r$. F_s be continuous analytic functions of the $x_1,\ldots x_l$, μ in a region G (for sufficiently small μ). F_s and f_s can be decomposed in G into uniformly convergent Fourier series with respect to t. For $\mu = 0$, (1) has periodic solutions with the period 2π. Since then

$$(3) \qquad \int_0^{2\pi} f_s(t)e^{-\lambda_s t}\,dt = 0 \qquad s = 1,\ldots,k+2m,$$

then for $\mu = 0$, (1) posesses a whole family of periodic solutions

$$(4) \quad x_s^0 = \begin{cases} \alpha_s e^{\lambda_s t} + \varphi_s(t) & (s=1,\ldots,k+2m) \\ \varphi_s(t) & (s=k+2m+1,\ldots,l) \end{cases}$$

$$\varphi_s(t+2\pi) = \varphi_s(t) = \int_0^t f_s(\tau)e^{\lambda_s(t-\tau)}\,d\tau$$

which depend on $k+2m$ arbitrary constants α_s. Malkin has shown that periodic solutions of (1) which go over in (4) for $\mu = 0$, can correspond only to those values of the constants α_s which satisfy the equations

$$(5) \quad P_s(\alpha_1, \ldots \alpha_{k+2m}) \int_0^{2\pi} F_s(x_1^0, \ldots x_1^0, 0, t) e^{-\lambda_s t} dt = 0 \qquad s=1,\ldots,k+2m.$$

The author proves the thorem: If for a certain system of the α_s, which satisfies (5), the real parts of all roots $\varkappa$ of the algebraic equations

$$(6) \quad \left| \frac{\partial P_s}{\partial \alpha_\sigma} - \delta_{s\sigma} \varkappa \right| = 0 \qquad s,\sigma = 1,\ldots,k+2m, \quad \delta_{s\sigma} - \text{Kronecker's } \delta$$

$$(7) \quad \left| \int_0^{2\pi} \frac{\partial F_s(x_1^0, \ldots, x_1^0, 0, t)}{\partial x_\sigma^0} dt - \delta_{s\sigma} \varkappa \right| = 0 \qquad (\nu = 1, \ldots r)$$

$$s, \sigma = k+2m+2(n_1 + \ldots + n_{\nu-1})+1, \ldots, k+2m+2(n_1 + \ldots + n_{\nu-1})+n$$

are negative, then for sufficiently small μ to this system of constants there corresponds a single periodic solution of (1) being analytic with respect to μ and asymptotically stable, which goes over in the solution (4)

mechanic treatment of ... production for the

BLEKHMAN, I.I., kandidat fiziko-matematicheskikh nauk.

Calculations for vibrators used in sinking and removing piles and cofferdam piling. Gidr. stroi. 26 no.2:44-45 F '57. (MIRA 10:4)
(Piling (Civil engineering))

BLeKhMAN I.I.

SUBJECT   USSR/MATHEMATICS/Differential equations   CARD 1/1   PG - 728
AUTHOR   BLECHMAN I.I.
TITLE   On the stability of periodic solutions of quasilinear autonomous
             systems with several degrees of freedom.
PERIODICAL   Doklady Akad.Nauk 112. 183-186 (1957)
             reviewed 5/1957

The author investigates the stability of the periodic solutions of quasilinear
autonomous systems under the assumption that among the roots of the characteristic
equation of the corresponding linear system there exists a multiple zero root
and an arbitrary number of simple or multiple pure imaginary roots. The system
is considered in the canonical form

$$\frac{dx_s}{dt} = \lambda_s x_s + \mu F_s(x_1, \ldots, x_1, \mu) \qquad (s=1, \ldots, 1).$$

In connection with the investigations of Bulgakov (Priklad.Mat.Mech. 19, 265
(1955)) the author shows that for sufficiently small μ the equation (1) has
a periodic solution being analytic and asymptotically stable with respect to μ,
if all roots of a certain algebraic system of equations possess negative real
parts.

INSTITUTION: Research Institute for Mechanic Treatment of Mineral Wealth.

BLEKHMAN I I

24-58-3-6/38

AUTHORS: Blekhman, I. I. and Dzhanelidze, G. Yu. (Leningrad)

TITLE: Analysis of Forced Oscillations of Certain Vibrating Machines with Several Vibrators (Issledovaniye vynuzhdennykh kolebaniy nekotorykh vibratsionnykh mashin so mnogimi vibratorami)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 3, pp 51-64 (USSR)

ABSTRACT: The analysis is concerned with vibrating conveyors and similar vibrating processing machinery actuated by a number of vibrator units. The working process demands that the working element of the machine should oscillate, at least approximately, as a solid body. This has been achieved in practice by distributing many vibration exciters closely spaced along the length of the working element, such as the trough of a vibrating conveyor. The practical drawbacks of a large number of units make it desirable to achieve the maximum spacing between vibrators. In earlier work L. P. Levin (Ref.1) deals with various problems relating to the dynamics of electro-vibration machinery assuming that their working unit is an absolutely rigid body. The paper considers the forced oscilla-tions of the working unit in vibrating machines when this unit

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24-58-3-6/38

Analysis of Forced Oscillations of Certain Vibrating Machines with Several Vibrators.

can be represented as an elastic beam with distributed mass. This approach has made it possible to explain in theory the practical effect of distributed vibrators. The differential equations of an elastic beam with a number of equally spaced vibrators are set up to which are added the equations for the shear force and bending moment steps at the points of action of each vibrator. Assuming a sufficiently large number of vibrators, all spans between vibrators can be considered equal. The motion of each span is determined by a system of eight linear non-homogeneous equations. Their solution is laborious, but, to determine the conditions whose fulfilment makes the beam vibrate practically as a solid body and to find the largest deviations between solid body and elastic vibrations, a method of successive approximations can be used, without solving the equations. The first approximation coincides with the motion of a rigid beam (Levin, L.P. "Problems of the Theory and Design of Electrically Vibrated Machines", Academy of Sciences of the USSR, 1957 Symposium on the Mechanics and Design of Vibrating Machinery). A method is shown to obtain each subsequent approximation from the preceding step. The

Card 2/4 analysis yields the conditions under which the elastic vib-

24-58-3-6/38

Analysis of Forced Oscillations of Certain Vibrating Machines with Several Vibrators.

rations of the beam are small compared with its motion as a solid body. The case wherein the axes of the vibrators are normal to the beam axis is considered separately and found to yield similar conditions. A numerical example illustrates the rapid convergence of the process of approximation. A special analysis is devoted to the verification of the applicability of these results, derived for beams of infinite length, to those of finite length. The results of the analysis are used to derive a simple formula (Eq.5.1) giving the maximum spacing between vibrators compatible with the condition that the amplitude of the transverse elastic vibrations of the beam does not exceed 25% of the amplitude of the transverse component of the solid vibration. In practice, inequality and dephasing between the vibrators requires closer spacing. Nevertheless, spacings found in practice are considered uneconomically close. There are 4 figures including 1 graph and 4 Soviet references.

Card 3/4

24-58-3-6/38

Analysis of Forced Oscillations of Certain Vibrating Machines with Several Vibrators.

SUBMITTED: October 2, 1957.

Card 4/4

1. Vibrating machines—Analysis

124-58-9-9535

AUTHOR: Blekhman, I. I.

TITLE: The Theory of Vibratory Separators and its Relationship With
            the Theory of Some Other Vibratory Machines (Teoriya vibro-
            separatorov i yeye svyaz' s teoriyey nekotorykh drugikh novykh
            vibratsionnykh mashin)

ABSTRACT: The principle of operation of a vibratory separator with an
            inclined deck is examined in detail, and differential equations
            are written for the motion of the particles contained in the
            vibratory separator that are in contact with the deck and in
            the process of being flung up. Certain types of possible
            particle motion are noted. A number of useful remarks are
            made relative to the setting up of problems, the solution of
            which is highly significant for the design calculation of new
            vibratory machines, e. g., equipment for vibratory ramming
            and vibratory loosening of a tongue-and-groove connection, etc.
Card 1/1   1. Vibration mechanisms--Theory 2. Vibration. A. S. Alekseyev
            mechanisms--Design 3. Differential equations--Applications 4. Mechanics
            --Theory

BLEKHMAN, I. I.

I. I. Blekhman, "A Theory for Self-Synchronizing Mechanical Vibrators."

paper presented at the 2nd All-Union Conf. on Fundamental Problems in the
Theory of Machines and Mechanisms, Moscow, USSR, 24-28 March 1958.

AUTHOR: Blekhman, I.I. (Leningrad) SOV/24-58-6-9/35

TITLE: On the Self-Synchronization of Mechanical Vibrators (O samosinkhronizatsii mekhanicheskikh vibratorov)

PERIODICAL: Izvestiya Akademii Nauk SSSR Otdeleniye Tekhnicheskikn Nauk, 1958, Nr 6, pp 54-67 (USSR)

ABSTRACT: The problem of self-synchronization is solved under the assumption that the vibrating part of the machine moves in a plane (i e has three degrees of freedom). Conditions are obtained under which a stable motion of the vibrators is possible where all have the same mean velocity (in absolute size) independently of the different parameters which specify the vibrators and of the absence of kinematic links between them. It is established that the self-synchronizing factor is the oscillations of the vibrating part of the machine. Relations are introduced for calculating the phase difference for the rotations of the vibrators in stable synchronous motions and also for finding the corresponding mode of oscillation of the vibrating part. The differential equations of motion are written down for machines in which unbalanced rotating rotors are used to excite the oscillations. These

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On the Self-Synchronization of Mechanical Vibrators

SOV/24-58-6-9/35

equations and all the results obtained can easily be extended to the case of machines in which one or more rotors can be the working part. The methods of Poincare and Lyapunov (Ref 4) are used to solve the equations. In solving the equations a specialization is made to the case of motion far from resonance. The necessary conditions for the possibility of synchronous motions is that there be a real phase and that the angular velocity is positive. The question of the stability of the synchronous motions of the vibrators is then discussed. This is reduced to the ordinary Hurwitz problem. From this analysis it is seen that the supplementary condition of asymptotic stability makes the above conditions for synchronous

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On the Self-Synchronization of Mechanical Vibrators $SOV/24-58-6-9/35$

motions sufficient as well as necessary.   As an example
of the theory the case of a machine with two vibrators
is considered.

There are: 1 figure and 6 references (all Soviet)

SUBMITTED: February 13, 1958

Card 3/3

SOV/24-58-7-16/36

AUTHORS: Blekhman, I.I. and Dzhanelidze, G.Yu. (Leningrad)

TITLE: On Effective Coefficients of Friction in Vibration
           (Ob effektivnykh koeffitsiyentakh treniya pri
           vibratsiyakh)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
             nauk, 1958, Nr 7, pp 98 – 101 (USSR)

ABSTRACT: In dealing with vibrating machines in recent years it was
           found necessary to investigate the problem of applicability
           of usual definitions of coefficients of friction (static
           and kinetic, as given by Eqs (1) and (2), respectively)
           to the cases of rest or motion of a body with respect to
           a vibrating plane or to the case in which there is a
           periodic disturbing force as well as some constant forces
           acting on a body. Results of investigations show that the
           true coefficient of friction in such cases depends on
           frequency, amplitude and other parameters of vibration.
           This dependence can be expressed by introducing an effective
           coefficient of friction which, in turn, will be a function
           of the "classic" coefficient of friction, i.e. either the
           static coefficient f_1 or kinetic coefficient f).

Card 1/3

On Effective Coefficients of Friction in Vibration

Assuming that the body may be treated as a material
point (Figure 1) the effective coefficient of friction
is deduced for the following three cases:
1) the harmonic force $\phi = \phi_0$ sin ωt is parallel to the
motion-producing force S (the effective coefficient of
friction is given by Eq (5));
2) the harmonic force ϕ is normal to S and parallel
to the normal force N (Eq (7) gives the result);
3) the harmonic force ϕ is normal to S and parallel
to the plane (Eq (9) gives the effective coefficient).
All these results are valid only for the cases where the
body remains in contact with the plane along which it moves.
The authors then introduce the concept of the period-mean
value of the coefficient of friction which is derived by
replacing the actual non-uniform motion of the body under
the action of all the forces acting on it by a hypothetical
motion with a constant (period-mean) acceleration. It
appears that this new mean value of the coefficient of
friction is equal to the kinetic coefficient of friction.
For the cases in which the contact between the body and the

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SOV/24-58-7-16/36

On Effective Coefficients of Friction in Vibration

plate is broken as a result of vibration the article quotes some results from Refs 2 and 3. Figures 2 and 3 give the dependence of the effective static and kinetic coefficient of friction in these cases as a function of $\mathcal{G}_0/N$:

Figures 2a and 3a represent the case when $\mathcal{G}$ is parallel to S; Figures 2b and 3b represent the case when $\mathcal{G}$ is perpendicular to the plane and Figure 2v represents the case when $\mathcal{G}$ is parallel to the plane and normal to S. There are 3 figures and 5 Soviet references.

SUBMITTED: April 21, 1958

Card 3/3

BLEKHMAN, I-I·

AUTHOR: Lokonov, M.F.   SOV/136-58-10-23/27
TITLE: The Fourth Scientific-technical Session of the Mekhanobr
            Institute (Chetvertaya nauchno-tekhnicheskaya sessiya
            instituta Mekhanobr)

ABSTRACT: On July 15-18, 1958, the fourth scientific and technical
          session of the Mekhanobr Institute was held in Leningrad.
          It was attended by about 300 representatives from
          scientific and design institutes, industry and political
          bodies. The session began with surveys of the work of
          the Institute since the third session in 1954 by Professor
          O.S. Bogdanov, G.A. Finkel'shteyn and A.B. Patkovskiy.
          The session then heard and discussed the following: by
          Ye.L. Kritskiy (Mekhanobr) on the development of a sound-
          measurement method of regulating ball-mill operation;
          by A.I. Povarov and M.G. Zabirov (Mekhanobr) on the auto-
          matic maintenance of constant hydrocyclone sands-density;
          by I.I. Blekhman (Mekhanobr) on the selection of the main
          operating parameters of vibration machines; by
          I.M. Abramovich (deceased) and R.V. Yevsiovich (Mekhanobr)
          on the development of a new industrial model of a three-level
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SOV/136-58-10-23/27

The Fourth Scientific-technical Session of the Mekhanobr Institute

concentrating table with 20 m^2 of total deck area"; by
G.A. Finkel'shteyn (Mekhanobr) on increasing the wear-
resistance of beneficiation equipment particularly by
rubberising; by G.A. Sedova (Giprotsvetmet) on the un-
certainty of the need to automate beneficiation works; by
A.M. Pogosov (VNIITsvetmet) on new equations for calculating
the grindability of ores and productivity of ball mills;
by A.K. Kuzovlev (Sredne-Aziatskiy institut geologii i
mineral'nogo syr'ya - Central Asian Geological and Mineral
Raw Materials Institute) on tests of a new type of turbo-
cyclone; by V.I. Lutsenko (Gorno-metallurgicheskiy institut
Armyanskogo sovnarkhoza - Mining-metallurgical Institute
of the Armenian Economic Council) on measures to improve
a type "Mekhanobr-6" flotation machine at the Kadzharan
Works; by V.R. Kubachek (UZTM) on modernisation of crushing
and grinding equipment; by S.I. Gorlovskiy on the work
of the Mekhanobr Institute on collectors and flotation modi-
fiers; by I.N. Maslenitskiy and V.V. Dolivo-Dobrovol'skiy
(Mekhanobr) on the rendering harmless of waste water from
beneficiation plants; by I.S. Shitov (Mine Management of
the Magnitogorskiy metallurgicheskiy kombinat - Magnitogorsk

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SOV/136-58-10-23/27

The Fourth Scientific-technical Session of the Mekhanobr Institute

Metallurgical Combine) on the slowness of Mekhanobr in certain fields; by A.A. Kalmykov (Noril'sk) on the incomplete utilisation of Noril'sk ores and changes in the flowsheet at the Noril'sk Beneficiation Works; by V.I. Saprykin (El'brus Mine) on the need for Mekhanobr to participate in the work on the utilisation of Suriysk deposit ores and accelerate their work in other fields; by B.M. Berdnikov (Tekeliyskaya obogatitel'naya fabrika - Tekeli Beneficiation Works) on the shortcomings of the Mekhanobr designs for the works; by V.A. Binkevich (Dnepropetrovskiy sovnarkhoz - Dnepropetrovsk Economic Council) on difficulties in the region in ore beneficiation; by O.S. Bogdanov, A.K. Podnek and V.Ya. Khaynman (Mekhanobr) on the kinetics of the action of flotation reagents; by V.Ya. Khaynman (Mekhanobr) on an investigation of the mechanism of the action of cyanides and complex cyanide compounds of ferri- and ferrocyanides; by S.D. Sukhovol'-skaya (Mekhanobr) on factors producing depression of minerals; by N.Ya. Yanis (Mekhanobr) on the investigation of various flotation modifiers for non-sulphide minerals with the aid of radioactive isotopes; by I.N. Shorsher

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The Fourth Scientific-technical Session of the Mekhanobr Institute   SOV/136-58-10-23/27

(Mekhanobr) on the flotational separation of collective
molybdenite-containing ores; Ye. I. Vishnevskiy and S.L.
Gekhtman (Mekhanobr) on the beneficiation of cassiterite-
containing ores; by N.K. Nikol'skiy, I.P. Kell', Yu.O.
Tennison and Yu.N. Chepelkin (Mekhanobr) on the determination
of the residual sulphur-ion concentration in the pulp with
the aid of a silver-sulphide electrode; | by A.S. Konev and
K.G. Bakinov on the technology of separating lead-copper
concentrate by depressing galenite with iron sulphate and
sulphite and flotation of the copper minerals; by G.S.
Strel'tsyn on the special features of flotation of perov-
skite ores at the Afrikanda Beneficiation Works;
by I.N. Maslenitskiy and P.M. Perlov on the present state
of the autoclave-soda process of treating tungsten-ore
beneficiation products in the USSR; by V.I. Konstantinov
(Mekhanobr) on layout at some of the largest Soviet
beneficiation works; by M.S. Tevonyan (Kavkazskiy institut
mineral'nogo syr'ya) on the successful experiments on the
separation of a lead-copper concentrate with potassium
permanganate; by V.A. Lisichenko (Kavkaz Institute of
Card 4/6 Raw Materials) on a study of the flotational reaction between

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The Fourth Scientific-technical Session of the Mekhanobr Institute

a mineral particle and an air bubble; by Professor I.A. Kakovskiy (Uralmekhanobr) on the influence of the surface state on the electrical separation of low-conductivity minerals; by Professor V.I. Klassen (IGD AN SSSR) on the vacuum flotation of particles smaller than 10 μ; by F.I. Nagirnyak (Uralmekhanobr) on the complex utilisation of low-grade copper-zinc ores; V.P. Sokolov (Sredneaziatskiy NII geologii i mineral'nogo syr'ya - Central NII of Geology and Mineral Raw Materials) on the beneficiation of boron-containing ores; Docent P.P. Titov on the use of radiant energy to improve the flotability of minerals; Professor K.A. Razumov (Leningradskiy gornyy institut - Leningrad Mining Institute); B.G. Krangachev (Armgiprotsvetmet) on some shortcomings of Mekhanobr; Ye.N. Grivezirskaya (Balkhash Copper Works) on Mekhanobr recommendations for that works; M.Z. Valyayeva (VNIITsvetmet) on the work of that organisation in Altay Beneficiation Works; by Professor S.I. Mitrofanov (Gintsvetmet) on sorption and the depressing action of reagents; V.A. Rundkvist (Mekhanobr) on the Mekhanobr designs for the Tekeli Works;

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The Fourth Scientific-technical Session of the Mekhanobr Institute

Professor M.A. Eygeles (VIMS) on errors in N.A. Yanis' work;
by I.P. Plaksin, Corresponding Member of the Ac.Sc.USSR,
on some of the reports presented.
At the concluding plenary session, V.F. Fedorov (GNTK USSR)
discussed the requirements in beneficiation for the future
and the part to be played by Mekhanobr. The following
participated in the discussions: A.A. Kalmykov (Noril'sk
Combine), V.A. Olevskiy (Mekhanobr), I.S. Shitov
(Magnitogorsk Metallurgical Combine).

Card 6/6

BLEKHMAN, I.I.

SOV/24-58-10-33/34

AUTHOR: Panovko, Ya. G.

TITLE: A Conference on Elastic Vibrations at the Institute of
Mechanical Engineering of the Academy of Sciences of the
Latvian SSR (Soveshchaniye po voprosam uprugikh kolebaniy
v Institute mashinovedeniya Akademii nauk Latviyskoy SSR)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
nauk, 1958, Nr 10, pp 158-159 (USSR)

ABSTRACT: This Conference took place on June 11-15, 1958, in Riga.
Altogether over 70 people took part in the conference (apart
from those normally based at Riga). Eleven papers were read:
1) "The effect of vibration on systems with dry friction", by
I. I. Blekhman and G. Yu. Dzhanelidze (Leningrad),
2) Two papers on dynamic problems in the nonlinear theory of
plates and the shells by V. V. Bolotin and A. S. Vol'mir
(Moscow),
3) "A qualitative study of the form and frequencies of
natural vibrations of thin elastic shells", by A. L. Gol'den-
veyzer (Moscow),
4) "Some problems in connection with vibrations of elastic
rods in the case of large displacements", by Yu. S. Shkenev,
Card 1/2   (Moscow),
5) "Coupled vibrations of vanes and discs in turbines" and

SOV/24-58-10-33/34

A Conference on Elastic Vibrations at the Institute of Mechanical
Engineering of the Academy of Sciences of the Latvian SSR

"Passage through resonance of a linear system with non-
linearly varying frequency", by A. P. Filippov (Khar'kov),
6) "Some problems in the dynamics of an ideally elastic
stretched thread", by V. A. Svetlitskiy (Moscow),
7) "On the similarity of dynamic processes in solid bodies",
by A. G. Nazarov (Yerevan),
8) "The problem of constructional hysteresis",by Ya. G.
Panovko (Riga),
9) "Constructional hysteresis in resin-metallic shock absorb-
ers", by G. I. Strakhov (Riga).
The conference was closed with a speech by M. M. Filonenko-
Borodich (Moscow).

Card 2/2

BLEKHMAN, I.I.

PHASE I BOOK EXPLOITATION   SOV/4530

Vsesoyuznoye soveshchaniye po osnovnym problemam teorii mashin
    i mekhanizmov. 2d, Moscow, 1958.

Dinamika mashin; sbornik statey (Dynamics of Machines; Collec-
    tion of Articles) Moscow, Mashgiz, 1960. 240 p. (Its:
    Trudy) Errata slip inserted. 3,000 copies printed.

Sponsoring Agency: Institut mashinovedeniya Akademii nauk
    SSSR.

Editorial Board: I. I. Artobolevskiy (Resp. Ed.) Academician,
    S. I. Artobolevskiy, Doctor of Technical Sciences, Pro-
    fessor, G. G. Baranov, Doctor of Technical Sciences, Pro-
    fessor, A. P. Bessonov, Candidate of Technical Sciences,
    V. A. Gavrilenko, Doctor of Technical Sciences, Professor,
    A. Ye. Kobrinskiy, Doctor of Technical Sciences, N. I.
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Ed.: L. V. Bezmenova, Candidate of Technical Sciences;
    Managing Ed. for General Technical Literature and Litera-
    ture on Transport Machine Building (Mashgiz):

Card 1/6

Dynamics of Machines (Cont.)   SOV/4530

A. P. Kozlov, Engineer; Tech..Ed.: B. I. Model'.

PURPOSE: This collection of articles is intended for
    engineers, designers, workers at scientific research in-
    stitutes, and instructors at schools of higher technical
    education.

COVERAGE: This collection consists of reports presented at
    the All-Union Conference on Problems in the Theory of
    Machines and Mechanisms held in Moscow in 1958. The re-
    ports discuss several problems of the dynamic design of
    complex mechanical systems. No personalities are men-
    tioned. References accompany most of the articles.

TABLE OF CONTENTS:

BLEKHMAN, I.I.

Selecting the basic parameters of vibrating conveyers. Obog.
rud 4 no.2:23-26 '59.   (MIRA 14:8)
                    (Ore dressing--Equipment and supplies)

BLEKHMAN, I.I.; LAVROV, B.P.

Method of avoiding resonance vibrations of vibration machines
after stoppage. Obog.rud 4 no.3:39-42 '59.   (MIRA 14:8)
                    (Vibrators)   (Resonance)

DUBROVIN, B.N.; BLEKHMAN, I.I.

Critical gap of inertial crushing machines.   Obog. rud   5 no.6:32-37
'60.   (MIRA 14:8)

(Crushing machinery)

/3. 2510

87797
S/040/60/024/005/020/028
C111/C222

AUTHORS: Blekhman, I.I., and Lavrov, B.P. (Leningrad)

TITLE: On an Integral Mark of the Motion Stability

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol.24, No.5,
pp.938-941

TEXT: In (Ref.1,2) Blekhman investigated the self-synchronization of
mechanical vibrators. It was stated that in a sufficient distance from
the resonance point the synchronous motions may correspond to every real
solution $\alpha_1, \ldots, \alpha_k$ of a certain transcendent system of equations (system
(2.18) in (Ref.1), system (2.6) in (Ref.2)). There k was the number of
vibrators, the α_i were denoted as generating phases. Most difficult was
the proof of stability of the obtained possible motions. In all concretely
calculated cases it turned out that stability is prevailing if the integral

$$(1.1)\ \Lambda_0 = \Lambda_0(\alpha_1, \ldots, \alpha_k) = \frac{\omega}{2\pi} \int_0^{2\pi/\omega} L_0 dt, \quad L_0 = T_0 - \Pi_0$$

is a minimum. Here ω is the angular velocity of the synchronous rotation

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S/040/60/024/005/020/028
C111/C222

On an Integral Mark of the Motion Stability

of the vibrators, T_o and Π_o are the kinetic and the potential energies
of the auxiliary body, the auxiliary body is a rigid body which to every
time is identical with the body on which the vibrators are installed and
which is obtained from the latter by an adjunction of the masses of all
non-balanced rotors which are concentrated on the rotational axes of the
vibrators,
The authors point out that they know no general principles from which
there follows the general mark (1.1) but that in more complicated cases
(1.1) can be confirmed experimentally.
The application of (1.1) is shown by two simple examples: two equal
vibrators on a body with one degree of freedom, two equal vibrators on a
softly bedded body with three degrees of freedom.
There are 2 figures and 3 Soviet references.

[Abstracter's note: (Ref.1 and 2) are papers of I.I.Blekhman in Inzhener-
nyy sb., 1953, Vol.16, and Izv.AN SSSR, Otd.tekhn.n.,1958, No.6 .]

SUBMITTED: June 6, 1960

Card 2/2

16.7300

AUTHOR: Blekhman, I. I. (Leningrad)

TITLE: Foundation of the Integrable Stability Criterion in Problems of Self-Synchronization of Vibrators

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 6, pp. 1100-1103

TEXT: The stability criterion given in a number of special cases in (Ref. 1) is now rigorously substantiated in a more general form.

The author considers k vibrators which are installed on one or several rigid bodies with ν degrees of freedom which are elastically connected together and with a fixed support. The deviations of the bodies from the static position of equilibrium are denoted by the generalized coordinates $x_1, \ldots, x_\nu$, the position of the rotors by the angles of rotation $\varphi_1, \ldots, \varphi_k$. Let the synchronous motions of the system be described by

$$(1.1) \quad \varphi_s = \sigma_s \left[\omega t + \psi_s(\omega t) \right] \quad (s=1, \ldots, k), \quad x_r = x_r(\omega t) \quad (r = 1, \ldots, \nu)$$

where ψ_s and x_r are periodic functions of the time with period $\dfrac{2\pi}{\omega}$,

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S/040/60/024/006/015/024
C 111/ C 333

Foundation of the Integrable Stability Criterion in Problems of Self-Synchronization of Vibrators

and $\sigma_s = \pm 1$. In (Ref.2,3) it has been shown that for equal and positive partial velocities of the vibrators the generating solution (initial approximation)

$$(1.2) \quad \varphi_s^{(0)} = \sigma_s(\omega t + \alpha_s) \quad , \quad x_r^{(0)} = x_r^{(0)}(\omega t)$$

satisfies the equations

$$(1.3) \quad \left[\frac{d}{dt} \frac{\partial L}{\partial \dot{x}_r} - \frac{\partial L}{\partial x_r} \right]_0 = 0 \qquad (r = 1, \ldots, \nu)$$

$$(1.4) \quad \sigma_s \frac{\omega}{2\pi} \int_0^{2\pi/\omega} \left[\frac{d}{dt} \frac{\partial L}{\partial \dot{\varphi}_s} - \frac{\partial L}{\partial \varphi_s} \right]_0 dt \equiv W_s(\alpha_1, \ldots, \alpha_k) = 0$$

$$(s = 1, \ldots, k)$$

where $L = L(x_1, \ldots, x_\nu; \dot{x}_1, \ldots, \dot{x}_\nu; \varphi_1, \ldots, \varphi_k; \dot{\varphi}_1, \ldots, \dot{\varphi}_k)$ is the Lagrange function of the system, and the lower index 0 means

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Foundation of the Integrable Stability Criterion in Problems of
Self-Synchronization of Vibrators

that the expressions are calculated for the solution (1.2).

It is shown: The equation (1.4) from which the generating phases
α_s are determined is identical with the condition that the Lagrange
function of (1.2) averaged over the period

$\frac{2\pi}{\omega}$, i. e.

$$(2.1) \quad \Lambda = \Lambda(\alpha_1, \ldots, \alpha_k) = \frac{\omega}{2\pi} \int_0^{2\pi/\omega} [L]_0 \, dt$$

be stationary; the stability conditions of the synchronous motions,
which are obtained according to methods of Lyapunov or Poincaré,
are identical with the conditions which are obtained if it is required
that the α_s-values of the function $\Lambda(\alpha_1, \ldots, \alpha_k)$, calculated from
(1.4), attain a maximum.

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S/040/60/024/006/015/024
C 111/ C 333

Foundation of the Integrable Stability Criterion in Problems of
Self-Synchronization of Vibrators

There are 5 Soviet references.

[Abstracter's note: (Ref.1) is a paper of the author and B. P.
Lavrov in Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 5;
(Ref.2) is a paper of the author in Izvestiya AN SSSR. OTN, 1958,
No. 6; (Ref.3) is a paper of the author in Izvestiya AN SSSR. OTN
"Mekhanika i mashinostroyeniye", 1960, No. 1].

SUBMITTED: June 6, 1960

Card 4/4

BLEKHMAN, I. and DZHANELIDZE, G. YU.

"Nonlinear problems of vibrotransportion and vibroseparation."

Paper presented at the Intl. Symposium on Nonlinear Vibrations, Kiev, USSR, 9-19 Sep 61

Politechnical Institute, Leningrad

BLEKHMAN, I. I.

"Integral criterion of stability periodic motions of some nonlinear systems and its application."

Paper presented at the Intl. Symposium on Nonlinear Vibrations, Kiev, USSR, 9-19 Sep 61

Politechnical Institute, Leningrad

BLEKHMAN, I.I.

PHASE I BOOK EXPLOITATION   SOV/5734

Akademiya nauk SSSR. Institut mashinovedeniya. Seminar po teorii
   mashin i mekhanizmov.

Trudy, t. 21, vyp. 83-84 (Academy of Sciences of the USSR. Insti-
   tute of Machine Science. Seminar on the Theory of Machines and
   Mechanisms. Transactions) v.21, nos. 83-84. Moscow, Izd-vo
   AN USSR, 1961. 161 p. Errata slip inserted. 2000 copies
   printed.

Sponsoring Agency: Akademiya nauk SSSR.

Editorial Board: Resp. Ed.: I.I. Artobolevskiy, Academician, G.G.
   Baranov, Professor, Doctor of Technical Sciences; M.L. Bykhov-
   skiy, Doctor of Technical Sciences; V.A. Gavrilenko, Professor,
   Doctor of Technical Sciences; V.A. Zinov'yev, Professor, Doctor
   of Technical Sciences; A.Ye. Kobrinskiy, Doctor of Technical
   Sciences; N.I. Levitskiy, Professor, Doctor of Technical Sci-
   ences; N.P. Rayevskiy, Doctor of Technical Sciences; L.N. Reshe-
   tov, Professor, Doctor of Technical Sciences; and M.A. Skuridin,

Card 1/6
   4

Seminar on the Theory (Cont.)   SOV/5734

Professor, Doctor of Technical Sciences; Ed. of Publishing
House: A.A. Demidenko;   Tech. Ed.:   S.G. Tikhomirova.

PURPOSE: This collection of articles is intended for scientific
   research workers and designers in the fields of machine and
   mechanism dynamics.

COVERAGE: The articles in No. 83 discuss the following: develop-
   ments and achievements in the field of machine and experimental
   dynamics, including vibrations and vibratory impact; investiga-
   tions in the theory of intermittent motions; differential equa-
   tions for describing the joint motion of mechanical (disbalancing)
   vibrators; investigations into the dynamics and stability of
   periodic regimes of motion in vibratory-impact systems; an attempt
   to find an approximate periodic solution of a second-order non-
   linear differential equation; and results of the application of
   electronic analog computers in analyzing the operation of rolling
   mills. No. 84 includes articles on the following: an analytical

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     4

Seminar on the Theory (Cont.)   SOV/5734

method for determining the positions of three-dimensional
multiple-link mechanisms composed of three-dimensional kine-
matic groups with lower kinematic pairs; an analytical method
for determining the parameters of the simplest hinged linkage
with two degrees of freedom; a general method for investigating
three-dimensional gearings; the effect of dry-friction dampers
on vibrations in railway vehicles; and the utilization of Bur-
mester's curves for determining the parameters of a multiple-
link hinged linkage with a dwell. No personalities are men-
tioned. References accompany individual articles. There are
260 references: 212 Soviet, 31 English, 16 German, and 1 French.

TABLE OF CONTENTS:

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Seminar on the Theory (Cont.)   SOV/5734

Artobolevskiy, I.I. Fundamental Problems in Modern
Machine Dynamics
    [Reported February 2, 1960]   5

Artobolevskiy, S.I. On Certain Fundamental Relation-
ships of the Mechanics of Intermittent Motions and
Their Utilization in Machine Design
    [Reported January 29, 1960]   29

Blekhman, I.I. The Joint Operation of Several Syn-
chronous Mechanical Vibrators
    [Reported February 1, 1960]   41

Brunshteyn, R.Ye., and A.Ye. Kobrinskiy. Investiga-
tion of the Dynamics and Stability of Vibratory-Impact
Systems
    [Reported February 1, 1960]   46

Card 4/5

      4

BLEKHMAN, I.I.

Critical gap of vibration roll mills. Obog. rud 6 no.1:31-34 '61.
(MIRA 14:8)

(Crushing machinery)

RUNDKVIST, A.K.; BLEKHMAN, I.I.; RUDIN, A.D.

Theory of the critical gap of inertial crushing and gringing machines.
Obog. rud   6   no.2:34-37 '61.   (MIRA 14:8)
(Crushing machinery)

BLEKHMAN, I.I.; RUDIN, A.D.; RUNDKVIST, A.K.

Conditions of motion with the runnin-in of grinding media
in vibrating crushing and grinding machines. Obog. rud 6
no.3:37-41 '61.   (MIRA 14:11)
                    (Crushing machinery)

BLEKHMAN, I.I.

Combined operation of several synchronous mechanical vibrators.
Trudy Inst.mash. Sem. po teor.mash. 21 no.83-84:41-45 '61.
(MIRA 14:6)

(Vibrators)

89401

S/040/61/025/001/022/022
B125/B204

16.73.0

AUTHORS: Blekhman, I. I., Dzhanelidze, G. Yu. (Leningrad).

TITLE: The stability of vibration-linearized nonlinear systems

PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 1, 1961, 173-176

TEXT: Without precisely mentioning the method used, this paper points out
the existence of a certain necessary condition for the correctness of the
consideration underlying this method. Though the principal motion of such
systems may be slow, the slight deviations from this motion caused by
perturbations may nevertheless be fast motions, which cannot be described
by vibration-linearized equations. Therefore, when using vibration-
linearized equations in the problem of stability, it is necessary, to
see to it that also the nonsteady motions described by these equations
are sufficiently slowly in comparison to the rate of change of the vibra-
tion component used for linearization. Ye. P. Popov, by the way,
suggested that, by the help of vibration-linearized equations, also the
stability of the slow principal motion of the system be investigated.
The differential equation of the motion of the system under investigation

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The stability of vibration-linearized...

reads $Q(p)x + R(p)F(x) = S_1(p)f_1(t) + S_2(p)f_2(t)$ (1.1), where the differential operators $Q(p)$, $R(p)$ and $S_2(p)$ are polynomials with respect to the operator $p = d/dt$. t is the time, x - the generalized coordinate, $F(x)$-a nonlinear function. The external action $f_1(t)$ is assumed to be a function of t, their frequency ω is assumed to be considerably lower than the frequency Ω of function $f_2(t) = B\sin\Omega t$, which here, for reasons of simplicity, is assumed to be harmonic. For the approximated solution of the problem, the solution of the form $x(t) = x^0(t) + x^*(t)$ (1.3) is set up, where $x^*(t) = A\sin(\Omega t + \varphi)$ holds; $x^0(t)$ is the slowly changing component; A and φ are slowly changing functions of time. By substituting (1.3) into (1.1), there follows

$$Q(p)x^0 + R(p)F(x^0 + x^*) + Q(p)x^* = S_1(p)f_1(t) + S_2(p)f_2(t) \quad (1.4)$$

If one expands $F(x^0 + x^*)$ in a Fourier series with respect to the harmonics $\sin k(\Omega t + \varphi)$ and $\cos(\Omega t + \varphi)$, it follows, when confining oneself to the terms with the first and second harmonic that:

$$F(x) = F^0(x^0, A) + q(x^0, A)x^* + \frac{q'(x^0, A)}{\Omega} px^* + \dots \text{ with } (1.5)$$

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The stability of vibration-linearized...   S/040/61/025/001/022/022
                                               B125/B204

$$F^o(x^o, A) = \frac{1}{2\pi} \int_0^{2\pi} F(x^o + A\sin\psi)d\psi, \quad q(x^o, A) = \frac{1}{\pi A} \int_0^{2\pi} F(x^o + A\sin\psi)\sin\psi d\psi$$

$$q'(x_0, A) = \frac{1}{\pi A} \int_0^{2\pi} F(x^o + A\sin\psi)\cos\psi d\psi \qquad (1.6)$$

With (1.5) and (1.6), two differential equations follow from (1.4); one of them describes the slow principal motion, the other, however, describes the quickly changing component:

$$Q(p)x^o + R(p)F^o(x^o, A) = S_1(p)f_1(t) \qquad (1.7)$$

$$Q(p)x^* + R(p)(qx^* + \frac{q'}{\Omega}px^*) = S_2(p)f_2(t) \qquad (1.8).$$

From (1.8) the amplitude A and the phase ψ are determined as function of x^o. For all skew-symmetric nonlinearities one finally obtains $F^o = \Phi(x^o) \approx k^o x^o$ (1.9). (1.7) then assumes the form $[Q(p) + k^o R(p)]x^o = S_1(p)f_1(t)$ for the slowly changing components. k^o here naturally depends on the amplitude B and on the frequency Ω of the

Card 3/4

KARPOV, N.A., kand.tekhn.nauk; BLEKHMAN, I.I., kand.fiz.-matem.nauk,
    retsenzent; ZEMSKOY V.D., kand.tekhn.nauk, retsenzent;
    YELISEYEV, V.V., inzh., retsenzent; ORLOVA, I.A., inzh., red.;
    VOROTNIKOVA, L.F., tekhn.red.

[Light vibratory machinery for track maintenance and repair;
theory, design, construction, and testing] Legkie vibratsionnye
putevye mashiny; teoriia, raschet, konstruirovanie i ispytaniia.
Moskva, Vses.izdatel'skopoligr. ob"edinenie M-va soobshcheniia,
1962. 311 p. (Moscow, Vsesoiuznyi nauchno-issledovatel'skii
institut zheleznodorozhnogo transporta. Trudy, no.245).
                                                    (MIRA 16:2)
    (Railroads—Equipment and supplies)   (Vibrators)

AGRANOVSKAYA, E.A.; BLEKHMAN, I.I.

Selecting optimum parameters for shaking conveyors with the help of an
electron model. Obog. rud 7 no.5:40-44 '62.   (MIRA 16:4)
   (Conveying machinery)   (Electronic analog computers)

BLEKHMAN, I.I.; GORTINSKIY, V.V.; PTUSHKINA, G.Ye.

Motion of a particle in a vibrating medium in the presence of a
nonlubricated friction type resistrnce (Theory of vibratory
separationof loose mixtures). Izv.AN SSSR. Mekh. i mashinostr.
no.4:31-41 Jl-Ag '63.   (MIRA 17:4)

BLEKHMAN, Il'ya Izrailevich; DZHANELIDZE, Georgiy Yustinovich
       [deceased]; MERKIN, D.R., red.

   [Vibratory motion] Vibratsionnoe peremeshchenie. Moskva,
   Nauka, 1964. 410 p.   (MIRA 17:12)

BLEKHMAN, I. I. (Leningrad)

"Problem of dynamic system synchronization in the theory of nonlinear vibrations"

report presented at the 2nd All- Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 1964.

BLEKHMAN I.I.; DZHANELIDZE, G.Yu. (Leningrad)

"The theory of vibrational displacement and its applications"

report presented at the 2nd All-Union Congress on Theoretical and Applied
Mechanics, Moscow 29 Jan - 5 Feb. 64.

BLEKHMAN, I.I. (Leningrad)

The problem of the synchronization of dynamic systems.
Prikl. mat. i mekh. 28 no.2:193-215 Mr-Ap'64.   (MIRA 17:5)

L 41135-65

ACCESSION NR: AR4046878   S/0124/64/000/009/A022/A023

SOURCE: Ref. zh. Mekhanika, Abs. 9A135

AUTHOR: Blekhman, I. I., Dzhanelidze, G. Yu.

TITLE: Nonlinear problems in the theory of vibromotive conveying and separation

CITED SOURCE: Tr. Mezhdunar. simpoziuma po nelineyn. kolebaniya
Kiyev, AN USSR, 1963, 4.-71

TOPIC TAGS: vibromotive conveying theory, vibromotive separation, particle motion
pattern, sliding motion stage, skipping motion stage, stage state s....
pattern classification, motion stage classification, motion pattern ....
vibromotive conveying application

TRANSLATION: The article describes the formulation of problems of . .
veying and separation. Noted are the complexities of problems on m....
cles along a vibrating surface and, especially, an analogous prob....
of free-flowing material. It was established experimentally that
cities of motion of a particle and of the layer approximate each other. A problem
on motion of an individual particle over a rough surface is analyzed in deta...
Equations are written for the motion of a particle along a sloping surface which is
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ACCESSION NR: AR4046878   6

subject to single-frequency oscillations in two mutually perpendicular directions.
It is noted that nonlinearity of the equations is dictated by the presence of dry
friction and non-retaining association forces. Hence the motion of a particle
generally consists of a number of stages, one characterized by its motion along a
surface, the other by free motion over the surface. Equations for
stage are easily integrated and the complexity of the entire problem
pinpointing moments of transition from one stage to another. Solu...
lem are obtained for the individual stages and a general analysis
lized patterns. The surface-contact motion stage is separated into segments
which the particle is in a state of relative rest or motion. When
fined which, when satisfied, classify the particle into one or another state of
ment. An analysis is made of the possible sequence of such stages and
segments. A classification of stabilized motion patterns is presented
of the overall study. Motion of particles with a period which
surface vibration period is called regular, while all other part...
termed irregular. Patterns are called regular when the particle
distance during each period and are termed accelerated when that
All conceivable stabilized patterns of particle motion are established for each
concrete instance by analyzing solutions to the motion equation.
equation for motion in individual stages are found for each such motion pattern

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L 41135-65
ACCESSION NR: AR4046878

and these integrals are joined. This provides a basis for defining areas in which
the pattern prevails. The latter's stability is also analyzed
fined from transition moments, i.e. stability requires that mom
from one stage to another in an unstabilized pattern appro
coincide as closely as possible to the corresponding moments
as time elapses. Analyzed in detail were stabilized patterns
without surface contact loss along a rectilinearly vibrat
ed that the particle motion period is equal to the plane
conceivable types of particle motion are determined, as are the
prevail. It is demonstrated that all these areas are static
was completed for the motion of particles along a sloping surf
involved surface contact loss stages. In conclusion, technical
given for the analyzed theory. V. A. Troitskiy

SUB CODE: ME   ENCL: 00

Card   3/3

BLEKHMAN, I.J. (Leningrad); KHAYNMAN, V.Ya. (Leningrad)

Theory of the vibratory separation of granular mixes. Izv. AN SSSR.
Mekh. no.5:22-30 S-O '65.   (MIRA 18:10)

BLEKHMAN, I.Ye., inzh.; KOTLYAR, N.L.

Stretching reinfprcements by electrothermal methods in making ceiling beams. Prom. stroi. 38 no.5:44-47 '60.   (MIRA 14:5)

1. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
       (Girders)   (Prestressed concrete)

KOPELEVICH, L.Kh., inzh.; BLEKHMAN, I.Ye., inzh.; MASENKO, I.D.,
       inzh.; OVCHAROV, V.I., kand. tekhn. nauk; DEKHTYAR, D.E.,
       kand. tekhn. nauk; VAKUSOV, V.G., inzh.; FINKINSHTEYN, V.A.,
       inzh., red.

[Technology of manufacturing large prestressed concrete
elements for industrial construction] Tekhnologiia izgotov-
leniia krupnorazmernykh predvaritel'no napriazhennykh zhe-
lezobetonnykh konstruktsii dlia promyshlennogo stroitel'stva.
Moskva, Gosstroiizdat, 1963. 99 p.   (MIRA 17:7)

1. Moscow. Nauchno-issledovatel'skiy institut organizatsii,
mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.

BLEKHMAN, L.A., podpolkovnik meditsinskoy sluzhby

Use of a levomycetin salve in treating blepharitis and conjunctivitis.
Voen.-med.zhur. no.12:68-69 '59.   (MIRA 14:1)
        (STREPTOMYCIN)   (EYELIDS—DISEASES)

BLEKHMAN, M.I., kand.biologicheskikh nauk

Morphology of auxiliary respiratory muscles in some mammals.
Trudy AZVI 9:334-342 '56.   (MIRA 15:4)

1. Iz kafedry normal'noy anatomii (zav. kafedroy - akademik,
zasluzhennyy deyatel' nauki KazSSR, doktor prof. B.A.Dombrovskiy)
Alma-Atinskogo zooveterinarnogo instituta.
        (Respiration)   (Muscles)   (Mammals--Anatomy)

ORLOV, A.V., inzh. (Moskva); BLEKHMAN, M.Ye., inzh. (Moskva)

Use of steam for knocking down hanging charges in bins. Energetik. 13
no.7:9-11 Jl '65.   (MIRA 18:8)

BLEKHSHTEYN, L.I.

VLASOV, Mikhail Fedorovich; PIGIN, Sergey Mikhaylovich; CHERVYAKOVA,
Vera Ivanovna; BLEKHSHTEYN, L.I., redaktor; ZABRODINA, A.A.,
tekhnicheskiy redaktor.

[Installation and regulation of electric measuring appratus]
Sborka i regulirovka elektroizmeritel'nykh priborov. Moskva,
Gos.energ.izd-vo, 1955. 245 p.   (MLRA 8:12)
    (Electric meters)

ACC NR: AP6032492 /AN) SOURCE CODE: UR/0413/66/000/017/0039/0039

INVENTOR: Blekhshteyn, L. I.; Mints, M. B.

ORG: none

TITLE: Unipolar magnetoelectric measuring instrument with magnet within the frame. Class 21, No. 185396

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovernyye znaki, no. 17, 1966, 39

TOPIC TAGS: measuring instrument, magnet

ABSTRACT: The proposed unipolar magnetoelectric device with a magnet within its frame contains a magnetic system, suspensions, and a pointer. In order to increase the angle of turning of the moving section, decrease overall sizes, and simplify the design of the magnetic system of the device, the system is formed by a ring magnetic circuit designed as a single whole with a coaxial ring and a magnet in the form of an open ring. The coaxial ring has a slot for winding the nonoperating side of the moving section frame. The magnet is magnetized in the radial direction and fitted on the ring. To reduce the dimensions, a part of the length of the exten-

Card 1/2   UDC: 621.317.715

sions is located in the nonoperating side of the frame (in parallel to the axis of the device). Orig. art. has: 1 figure.   [Translation]
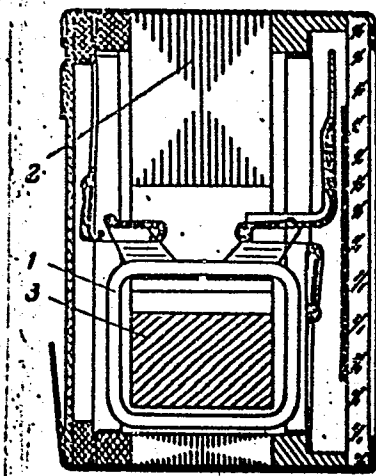

Fig. 1. Unipolar magnetoelectric device.
1—Moving section;
2—magnetic circuit;
3—magnet

Card 2/2   SUB CODE: 09/SUBM DATE: 13Apr64/

ARUTYUNOV; Valentin, Osipovich; BLEKHSHTEYN, Lazar' Isaakovich;
ZHARZHEVSKIYY, Zundel' L'vovich; LK, Petr Timofeyevich;
VORONETSKAYA, L.V., tekhnicheskiy redaktor

[Atlas of construction elements for direct measurement electric
meters] Atlas konstruktsii elektroizmeritel'nykh priborov
neposredstvennoi otsenki. Pod red. V.O.Arutiunova. Moskva, Gos.
energ. izd-vo, 1956. 235 p.   (MIRA 9:9)
        (Electric meters)

IVANOV, Boris Nikolayevich; TKALIN, Ivan Mikhaylovich; SOLNTSEV, Vyacheslav
Aleksandrovich; SHTRUM, Viktor L'vovich; SHNEYDER, Roman Izrayle-
vich; MAYANSKIY, Iosif Isaakovich; BORISOVA, Volya Petrovna; ARUTYU-
NOV, V.O., retsenzent; BLEKHSHTEYN, L.I., red.; SOBOLEVA, Ye.M.,
tekhn.red.

[Technology of the manufacture of electric instruments] Tekhnolo-
giia elektropriborostroeniia. Moskva, Gos.energ.izd-vo, 1959.
590 p.   (MIRA 13:4)
         (Electric apparatus and appliances)

TKALIN, Ivan Mikhaylovich; SHTRUM, Viktor L'vovich; MAYOROV, S.A.,
        kand. tekhn. nauk, retsenzent; BLEKHSHTEYN, L.I., inzh., red.;
        SOBOLEVA, Ye.M., tekhn. red.

[Automation and mechanization in the manufacture of electrical
instruments]Mekhanizatsiia i avtomatizatsiia v elektropriboro-
stroenii. Moskva, Gosenergoizdat, 1962. 331 p.
                                          (MIRA 15:12)

    (Electric instruments)   (Automation)

L 6380-66
ACC NR: AP5026762   SOURCE CODE: UR/0286/65/000/017/0040/0040

INVENTOR: Rabinovich, V. B.; Blekhshteyn, L. I.

TITLE: A variable capacitor. Class 21, No. 174271 [announced by the Enterprise of the State Committee on Electronic Technology, SSSR (Predpriyatiye Gosudarstvennogo komiteta po elektronnoy tekhnike SSSR)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 40

TOPIC TAGS: variable capacitor, electronic component

ABSTRACT: This Author's Certificate introduces a variable capacitor with a fixed plate fastened to a base and separated by a layer of solid dielectric material from a rectangular or round plate bent in the arc of a circle. This plate is movable and is equipped with a support disc. The opposite edges of the movable plate are pressed to one side of the support disc, and the adjustment mechanism for tuning the capacitor is pressed to the other side. The engagement factor is increased by placing an insulating washer between the layer of solid dielectric material and the central section of the movable plate. The movable plate has an elastic insert (e.g. rubber) with a layer of foil on one side and an elastic metal plate fastened to the other side.

SUB CODE: EC/   SUBM DATE: 10Aug64/   ORIG REF: 000/   OTH REF: 000

                                                    UDC: 621.319.43
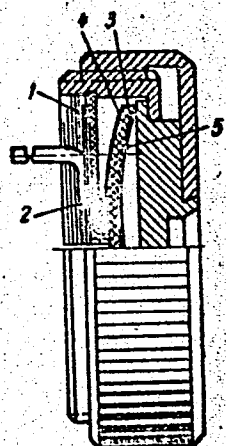
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Fig. 1.   1--solid dielectric layer; 2--
--washer; 3--rubber insert; 4--foil layer;
5--metal plate

Cord   2/2

L 25955-66   EWT(1)

ACC NR: AP6015636   SOURCE CODE: UR/0413/66/000/009/0044/0044

INVENTOR: Blekhshteyn, L. I.; Gurtman, S. B.; Magarshak, B. G.   37
                                                                                    B
ORG: none

TITLE: DC electric motor. Class 21, No. 181180

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 44

TOPIC TAGS: electric motor

ABSTRACT: The schematic diagram of a slowly rotating dc motor is shown in the figure. The motor consists of three electrolyte containers symmetrically placed
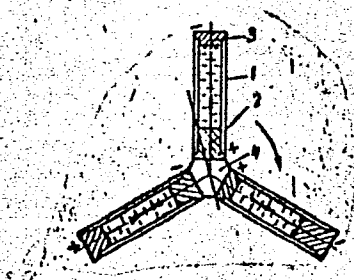

Fig. 1. Dc electric motor

1 - electrolyte container; 2 - anode;
3 - cathode; 4 - shaft.

Card 1/2   UDC: 621.313.13.024-585

L 25955-66

ACC NR: AP6015636   ⊘

around the motor shaft. The dc current passing through the electrolyte causes the
substance to be transferred from the anode to the cathode, thus changing the center
of gravity of each container. The current direction in the containers is switched
to assure rotation, i. e. the substance in the containers located on one side of
the vertical plane passing through the shaft center is directed outward, while the
substance on the opposite side of the surface is directed inward. Orig. art. has:
1 figure.   [BD]
SUB CODE: 10/ SUBM DATE: 03Feb64/ ATD PRESS: 4256.

Card 2/2 FW

KUZNETSOV, V. I.; BLEKHTA [Blechta], V.

Extraction of uranyl nitrate by means of mixture of methyl ethyl ketone and tetrachloromethane. Coll Cz Chem 26 no.4:1092-1098 Ap '61.

1. Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo, Akademiya nauk SSSR, Moskva.

(Uranyl nitrate)   (Ketone)   (Methane)

36648

S/081/62/000/008/019/057
B166/B101

AUTHORS: . Kuznetsov, V. I., Blekhta, V.

TITLE: Extraction of uranyl nitrate with a mixture of methylethyl-
             ketone and carbon tetrachloride

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 8, 1962, 125, abstract
             8D96 (Collect. Czechosl. Chem. Communs, v. 26, no. 4, 1961,
             1092-1098)

TEXT: In extracting U from calcium nitrate-saturated solutions diethyl
ether can be replaced by a mixture of 64 % by vol. of methylethylketone
+ 36 % by vol. of CCl_4. As regards its extracting effect this mixture is
equivalent to diethyl ether, but is less inflammable than the ether. The
working conditions and the results obtained are the same as with the ether.
Determination of the U separated by extraction is carried out photo-
metrically with arsenazo. For this, after re-extraction with water or
distillation of the solvent, 3 drops of 1 % $NH_2OH \cdot HCl$ are added to an
aliquot portion containing 20-200 μU, which is then heated in order to

Card 1/2

Extraction of uranyl nitrate...

reduce the Fe^{3+} and cooled; 0.1 ml of 0.02 % solution of complexon III, 2.00 ml of 0.05 % solution of arsenazo in 0.05 M HCl and 2.5 ml of 5 % solution of urotropine are introduced and it is brought up to 25 ml with water, after which photometric analysis is carried out in 10 mm cells at 600 mμ. Then 2 drops of perhydrol are added, destroying the uranium and arsenazo complex, and the color brought about by the other metals is measured again with the photometer. The U content is evaluated by the difference in the optical densities. [Abstracter's note: Complete translation.]

Card 2/2

CHUBUKOV, A.A.; BLEKIS, V.K.

Automatic machine for welding bottoms to connecting pipes.
Mashinostroitel' no.2:9-10 F '64.   (MIRA 17:3)

BLEKIS, V.K., inzh.; KAGAN, I.L., inzh.; CHUBUKOV, A.A., inzh.; SHUL'MAN, I.Ye., inzh.; CHERNYSHEV, A.K., inzh.

Portable OSN-IM equipment for welding in carbon dioxide.
Svar. proizv. no.5:29-30 My '64.   (MIRA 18:11)

1. Nauchno-issledovatel'skiy institut tekhnologii mashinostroyeniya,
Rostov-na-Donu.

ACCESSION NR: AP4027580   S/0040/64/028/002/0193/0215

AUTHOR: Blekman, I. I. (Leningrad)

TITLE: Problem of synchronization of dynamic systems

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 2, 1964, 193-215

TOPIC TAGS: synchronization, dynamic system, harmonious functioning, auto-oscillation, synchronous motion, periodic motion, periodic coefficient

ABSTRACT: Synchronization is an effect which can be observed in the behavior of both artificial creations as well as natural objects. In this survey article, the author gives a general formulation of the problem of synchronization of dynamic objects and studies their properties. He enumerates the principal concrete problems and applications, and indicates the mathematical tools suitable for studying the basic class of synchronization problems--problems on harmonious functioning of several almost identical self-oscillating objects which weakly affect each other. The observable tendency of such objects toward synchronous motion is expressed mathematically by the fact that a certain system of differen-

Card 1/2

ACCESSION NR: AP4027580

tial equations with periodic coefficients, as a rule, allows stable periodic
solutions. The author gives a short survey of work in the theory of dynamic
systems synchronization and lists the unsolved problems in this area. The
bibliography is extensive. Orig. art. has: 34 formulas and 7 figures.

ASSOCIATION: none

SUBMITTED: 24Nov63   DATE ACQ: 28Apr64   ENCL: 00

SUB CODE: PH, MM   NO REF SOV: 071   OTHER: 008

Card 2/2

BOGOMOLOVA, L.G., doktor med.nauk; BLEKSMIT, Z.D., nauchnyy sotrudnik; VEYKHER, Z.F., nauchnyy sotrudnik

Testing a new variant of dry hemohormonestimulin. Akt.vop.perel.krovi no.4:162-165 '55.
(MIRA 13:1)

1. Laboratoriya sukhikh preparatov krovi Leningradskogo instituta perelivaniya krovi (zav. laboratoriyey - doktor med.nauk L.G. Bogomolova).
(BLOOD AS FOOD OR MEDICINE)   (SEX, HORMONES)

Filter on did 2-benzhydryl,...........
active anticoagulant was II; the remaining test compds.
had no activity. All compds. were nontoxic to mice at
200 mg./kg. excepting I, which caused respiratory distress
.... mortality at 100 ... .

BLEKSMIT, Z. D. Cand Med Sci -- (diss) "On the Possibility of

Utilizing Retroplacentary Blood for Therapeutic Preparations."

Len, 1957. 10 pp 20 cm. (First Len Medical Inst im Academician

I. P. Pavlov), 200 copies (KL, 25-57, 118)

- 12 -

USSR/Human andAnimal Physiology - Blood Circulation.
The Vessels.

Abs Jour   : Ref Zhur Biol., No 3, 1959, 12822

Author   : Bleksmit, Z.D., Kotovshchikova, M.A.
Inst   :
Title   : Technique for Achievement of Experimental Venous Thron-
               bosis.

Orig Pub   : Byul. eksperin. biol. i ned., 1957, No 1, prilozheniye,
               67

Abstract   : Venous thronbosis was achieved by applying 20 - 35
               blows with the flat handle of a scalpel along the iso-
               lated vein. This resulted in a transitory stasis of
               the blood (the vein was supported by temporary ligatu-
               res), injury of the intima, and liberation of thrombo-
               plastin. This technique, a modification of Hirsch and
               Lou (Proc. Soc. Exptl Biol. and Med., 1946, 63, No 3,
               569-572), is convenient for the achievement of

Card 1/2   - 57 -

Card

BLEKSMIT, Z.D.

EXCERPTA MEDICA Sec.9 Vol.12/4 Surgery April 1958

2066. THE USE OF RETROPLACENTAL BLOOD PREPARATIONS IN SURG-
ERY (Russian text) - Bleksmit Z.D. - VESTN.KHIR. 1957, 78/2
(70-73)

Retroplacental blood is rich in hormones, antigens and other substances causing regeneration and growth. Therefore it must have a strong stimulating action. As the preparation of this blood is difficult technically, a serum preparation was made. This preparation was administered in 2 groups of patients. The first group consisted of 50 ulcer patients, who were given daily i.m. injections of 5 ml. Considerable improvement was observed after 7-9 days. The 2nd group consisted of patients with posttraumatic arthritis. These patients received 10 ml. i.m. per day. After 6-8 injections, the pains had disappeared completely or almost completely. For local treatment, a preparation in powder form is made from the red cells of retroplacental blood. This was used 70 times in cases of postoperative fistula, trophic ulcers and badly healing wounds; as a rule, more rapid granulation and healing were observed.
                                                                    Chwat - Łódź

BLEKSMIT, Z.D.; KOTOVSHCHIKOVA, M.A.

Method of producing an experimental venous thrombus. Biul.eksp.biol.
i med. 43 no.1 supplement:67 '57.   (MIRA 10:3)

1. Iz laboratorii sukhikh preparatov Leningradskogo instituta
perelivaniya krovi (rukovoditel' - professor L.G.Bogomolova).
Predstavlena deystvitel'nym chlenom AMN SSSR V.N.Shamovym.
        (THROMBOSIS)

BLEKSMIT, Z.D.

KOTOVSHCHIKOVA, A.M.; BLEKSMIT, Z.D.

Method of determination of clot retraction. Probl.gemat. i perel.
krovi 2 no.3:53-55 My-Je '57.   (MIRA 10:8)

1. Iz Leningradskogo ordena Trudovogo Krasnogo Znameni instituta
perelivaniya krovi (dir. - dotsent A.D.Belyakov; nauchnyy ruko-
voditel' - chlen-korrespondent AMN SSSR prof. A.N.Filatov)
        (BLOOD COAGULATION,
            clot retraction, determ. (Rus))

KOTOVSHCHIKOVA, M.A., kand.biol.nauk; BLEKSMIT, Z.D., nauchnyy sotrudnik

Difenacin is a new anticoagulant. Akt.vop.perel.krovi no.6:208-216
'58.   (MIRA 13:1)

1. Laboratoriya sukhikh preparatov krovi i krovozameniteley (zav.
laboratoriyey - prof. L.B. Bogomolova) i radiobiologicheskaya labora-
toriyey - starshiy nauchnyy sotrudnik G.M. Murav'yev) Leningrad-
skogo instituta perelivaniya krovi.
       (INDANDIONE)   (ANTICOAGULANTS (MEDICINE))

TEODOROVICH, V.P., starshiy nauchnyy sotrudnik; KOTOVSHCHIKOVA, M.A., kand. biol.nauk; BLEKSMIT, Z.D., nauchnyy sotrudnik

Influence of anticoagulants on experimental thromboses. Akt.vop. perel.krovi no.6:216-218 '58.   (MIRA 13:1)

1. Patologo-anatomicheskoye otdeleniye i laboratoriya sukhikh prepa-
ratov Leningradskogo instituta perelivaniya krovi.
        (ANTICOAGULANTS (MEDICINE))   (THROMBOSIS)

EXCERPTA MEDICA Sec 9 Vol 13/10 Surgery Oct. 59

6195. EXPERIMENTAL AND CLINICAL ASSESSMENT OF A NEW ANTICOAGU-
LANT PHENYLINDANDIONE (Russian text) - Bicksmit Z. D., Koto-
vshchikova M. A. and Martynova N. V. - VESTN. KHIR. 1958,
81/8 (64-68) Graphs 3

The new anticoagulant phenylin is identical in its chemical structure with the
foreign phenylindandione. As judged by the animal experiments the prothrombin
time is the most reliable index of antivitamin K activity; it was found to be in-
creased after the administration of the preparation was discontinued, in the first
1-2 and returned to the previous figures in 2-3 days' time. Phenylin was used
clinically to treat various kinds of thrombophlebitis and to prevent thrombosis.
Among the patients a different sensitivity was found to be present but doses of
0.03-0.05, 1-3 times daily yielded a good medical and prophylactic action. The
treatment level of prothrombin decrease is 35-40%, but the prophylactic level is
60-70%. Phenylin is not as toxic as dicoumarin, acts promptly and does not have a
cumulative action.
(IX, 2, 6)

BLEKTA, M.

BLEKTA M., GJURICOVA J., LUKAS J.
Spravna vyziva zdrave a nemocne tehotne. /Nutrition in pregnancy/
Cesk. gyn. 15:4-5   1950   p. 220-37.

NAI

CLML   19, 5, Nov. 50

BLECTA

[Prophylaxis of premature births and prenatal care] Profylaxe predcasneho porodu v prenatalni peci. Cesk.gyn. 15 no.1-2:13-17 '50.
(CLML 19:1)

BLEKTA, M., Dr.; JANOUSEK, St., Doc. Dr.; LUKAS, J., prof. Dr.; SOM-
MEROVA, O.; SEBEK, T., Dr.; TOMASEK, Z., Dr.

Investigations on pregnancy in the population according to certain
biochemical and hematological factors. Cas.lek.cesk. 91 no.40:1138-
1144 3 Oct 52.

1. Z II. porodnicke kliniky a ustredni laboratore e fakultniho
zdravotnickeho' strediska Karlovy university v Praze.
         (PREGNANCY, physiology,
             hematol., physiology & biochem. aspects, statist.
             analysis)

DIVISOVA, Gabrielu, Dr.; BLEXTA, Mojmir, Dr.; MACKU, Frantisek, Dr.

Fundus oculi in late gestoses.   Cesk. ofth. 11 no.6:404-410
Dec 55.

1. Z II. ocni kliniky, prednosta akad. MUDr. Jaromir Kurz, a z
II. porodnicko-gynekologicke kliniky, prednosta prof. MUDr.
Josef Lukas.
          (PREGNANCY TOXEMIAS, manifestations,
               eye).
          (EYE, in various diseases,
               pregn. toxemias, late)

BLEKTA, Mojnir, MUDr.; MACKU, Frantisek, MUDr.

Delivery in late toxemia. Cesk. gyn. 22/36 no.1-2:40-47
Feb 57.

1. II. por. klinika KU v Praze. Prednosta doktor lek. ved,
prof. MUDr. J. Lukas.
        (PREGNANCY TOXEMIAS, statist.
            delivery in late toxemia (Cz))
        (DELIVERY, statist.
            in late pregn. toxemia (Cz))

BLEKTA, MOJNIR

MACKU, Frantisek, MUDr.; BLEKTA, Mojnir, MUDr.

Incidence of late toxemia. Cesk. gyn. 22/36 no.1-2:47-53
Feb 57.

1. II. por. klinika KU v Praze. Prednosta: Doktor lek. ved,
prof. MUDr. J. Lukas.
       (PREGNANCY TOXEMIAS, statist.
            late toxemia (Cz))

BLEKTA, M.; BENDL,J.; KUCERA, E.; GJURICOVA, J.

Role of nutrition in the prevention of pregnancy complications.
Cesk.gyn. 25[39] no.3:181-185 1960.

1. II.gyn.por.klin. KU v Praze, prednosta prof.dr. Sc. J. Lukas.
(PREGNANCY nutrition & diets)

BLEKTA, M.; HRADL, J.; KUCERA, B.; GJURICOVA, Jirina

Preventive effect of nutrition on late gestosis. Cesk.gyn. 25
[39] no.3:198-202 1960.

1. II.gyn.por.klin. KU v Praze, predn.prof. Dr.Sc. Josef Lukas.
           (PREGNANCY TOXEMIAS nutrition & diets.)

BLEKTA, Mojmir; CEJKOVA, Bozena; OPPLT, Jan; RICHTER, A.F., technicka
spoluprace Dobiasova, Marta

Serum examination in late gestosis. Cas.lek.cesk. 99 no.3/4:
70-74   22 Ja '60.

1. II. ustav lekarske chemie University Karlovy v Praze. II. po-
rodnicka klinika University Karlovy v Praze. Oddeleni klinicke
chemie SFN v Praze 12.
            (PREGNANCY TOXEMIAS blood)